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INTERVIEW
General George Babbitt
Former Commander, Air Force Materiel Command

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Questions for Gen. Babbitt:

1. What were the major issues confronting your command when you took over? What about now? What were your objectives for AFMC? Where did those objectives come from? Which were accomplished? Which were not?

2. Did you think that AFMC's capacity to meet the service needs of the combatant commands could, in fact, be reconciled with pressures to spend less, now and in the foreseeable future? Did you think this objective could be accomplished through interventions you could author as Commander?

3. What interventions did you author or intend to author that were addressed to this issue?

4. Would you explain your reliance on the business metaphor in explaining your initiatives, especially your use of concepts derived from managerial accounting?

5. Where/how did you learn about these approaches? DLA experience?

6. Do you see a conflict between military and businesslike missions/goals, especially efficiency? If so, how do you think the conflict should/can be resolved?

7. How did your interventions fit with those authored by your predecessors? How were they different? Why?

8. Did you find any serious mismatches between your approach to controlling, reporting, and resource allocation and AFMC's structure of authority and

responsibility, culture, and staffing? How about tensions with the existing DOD budget process, especially the PPBS process?

9. How do you account for the uneven uptake of cost management approach throughout your command and across functions?

10. How do you account for the tendency of many of the implementers in your command to fall into implementation rituals (like ABC), when your concept was very abstract (an ability to manage costs)?

THOMPSON: One of the things I asked in the e-mail was that, if after you looked over this list of questions there were really any good questions that you thought we left out? Are there? If so. I would probably like to have an answer to that question more than the answers to any of these.

BABBITT: I think these questions get pretty close to the main issues related to implementation of the Business Management Approach. The thing that I underestimated was the difficulty of getting people to focus on managing costs. I still am not sure exactly why there is such a resistance to focusing on cost, But there clearly is. It eventually hits the emotional issue. It is unexplainable for some people. They do not know why they resist it so much, but they just know in their heart that it is not the right thing for a military person to do, and they resist it much more than I do.

THOMPSON: The first question has to do with the basic issues that were confronting AFMC when you took over. What were they and are they the same issues now?

BABBITT: To an extent I think they are the same issues. I think people would like to believe they are not, but the experience I had in my first tour of the

Pentagon tells me that they have been around for a long time and will continue into the foreseeable future.

I got to the Pentagon 1986. That was the peak spending year for the Reagan administration military buildup. What we did at that time in our day-to-day work was totally different than what we did even two years later. But even in 1986, when we were building-up as fast as we could, looking out 2 and 3 and 4 years, it was clear that funding would come down. I don't know how any reasonable person could have expected to sustain the programs and the funding rate of growth built in to the ‘86 force plans. It made no difference who the President of the US was. You just couldn't continue to have that rate of growth in federal spending.

So there were already tough issues in '86 facing people about how to take the funding level down. And there is a tendency in a bureaucracy not to face up to those issues but to assume that funding is somebody else's problem. And we're not going to make somebody else's problem easier by solving it for them before they have even told us it is a problem. In other words, we are not going to solve the Congress's problem before they have told us we can't have that much money.

By 1989 or '90 that had changed somewhat. The Department of Defense was formulating how we were going to take advantage of the end of the Cold War to draw down the size of our military forces. The whole thing went by various names: the peace dividend, reduced force structure. We were going to modernize the forces and change the nature of warfare. The need for efficiency in the way we do business in the Department of Defense was frequently talked about, especially for commercial-like activities. That really started in the Bush administration. It was very much a continued theme in the Clinton Administration and, in fact, the whole mantra about a revolution military affairs and a revolution in business affairs was a continuation I thought of an emphasis that started in 1988. And to be honest with you I agreed with it.

Having been in the material side, the business side of the Air Force, as opposed to being directly involved with combat units for most of my career, I was very sensitive to the fact that you didn't have to look very far to see things that could be done just as well or better in terms of performance and for a lot less money if we took certain steps to change people's attitude and motivate them differently. And so I think I had that feeling in the 80's that we needed to move in that direction.

I came back to the Pentagon in 1993, and that was right about the time of the bottom up review with the first Clinton Administration. And people were really struggling with this problem. [Secretary of Defense Les] Aspin and [Secretary William] Perry and those people in the administration and in the Department of Defense at the time thought that the way to lead the military through this revolution in business affairs and military affairs was to try to bound it. And I think they hit upon this idea that we would start saying that defense is made up of certain categories of expensive things. There is core structure, there is readiness, there is modernization, and there is this thing we call infrastructure, which really becomes everything else. They were not precisely defined categories. But this was a way to say defense budgets were not going to get any bigger.

That was the starting argument. There would be all sorts of reasons why they weren't going to get bigger -- deficits and the absence of a threat being the main ones. Therefore it was up to us. That was the challenge given to the military. We were told that you can have more core structure or you can have more modernization or you can have more readiness or you can have more infrastructure, but you make the trades. If that is the question, the answer is easy Who is the advocate for infrastructure? Nobody likes infrastructure. So let's go kill the infrastructure. Well, a lot of AFMC is infrastructure.

There was a defense science board that I was the Air Force member on. We had 5 or 6 meetings over about 4 or 5 months. I learned a lot from the discussions. It

was actually a very thoughtful group. This was in I think 1996. Philip Dean was the chairman of this particular panel and there were lots of interesting, very well experienced people from industry on the group, and I was just the Air Force member. But then in the end we put together this briefing that was the final report and, as it was feverishly put together -- I don't know why we waited until the last minute to do it -- Philip Dean would e-mail copies to those of us who sat on the board, and asked for comments. As we went through the various parts of it, I would occasionally make a comment that I thought this didn't characterize the way the discussion went or maybe the point could be made better like this and I would send it back in. And then one day I got a copy of what was supposed to be the final draft. At the end it had this slide that described how we had concluded that by changing the way we do business in the DOD we could save 30 billion dollars a year. I asked Phil, where did this come from? Nobody ever talked about 30 million dollars a year before. I didn't get a very good answer. I think that this was just the insiders' way of putting pressure on the military. Long story, but the point is that there was a lot of emphasis on trying to reduce infrastructure, reduce the cost of business, and to make that a positive thing.

That theme went something like this: look there are all these people from industry that have done miraculous things. US industry was in the doldrums in the 80's. The Japanese were beating our ass. Then, all of a sudden, industry revitalized itself and got lean and mean and now America is the most competitive country in the world -- leading in all markets. So why can't you the military do the same thing? Why can't you take on that challenge? I didn't resist. That seemed like a pretty good argument to me and so I was predisposed to want to find ways to improve the ways we did the business of the Air Force. And certainly AFMC is at the heart of trying to do business in the Air Force.

THOMPSON: You used the term commercial like activities. What are the kind of things the Air Force does that you think of when you use that term?

BABBITT: We take care of bases. Industry has industrial parks There is a lot of commonality in those kinds of terms. We maintain equipment -- aviation equipment. So do the airlines. We provide medical support. So do HMO's and hospitals. There are a lot of things we do in the military for ourselves that are also done by commercial companies. The question is, why do we do those things? Why not just buy the service? The answer used to be, because we want to have our people trained to deliver those services so in times of conflict they can go forward and deliver them in the battlefield. As nature of warfare changes, the need to do that also changes and, therefore, maybe it would be better to take more advantage of commercially provided services. But even where cannot or don't, we should meet commercial standards of efficiency wherever possible. The fact of the matter is that most of the activities performed by AFMC are also performed by businesses. We can often better serve the needs of the Air Force by adopting the proccesses they use.

THOMPSON: When you assumed command of AFMC in May 1997. Did you, or the Air Force Chief of Staff, establish your objectives?

BABBITT: I largely established my own objectives. It worked out sort of serendipitously that I had the time to do so. That was because of the delay in my confirmation [as commander of AFMC]. I was director of DLA [Defense Logistics Agency] at the time, and I had planned to come to AFMC in early April of 1997. Because of the delay in confirmation, it was near the end of May [29 May 1997] before the assumption of command. So in that intervening time I had the opportunity to ponder what I was going to focus on and how I was going to get started. I did have some fairly specific objectives that I thought would be worth emphasizing.

As for direction from the Chief of Staff, it was more indirect than direct. During the time that I was the Air Force DCS [Deputy Chief of Staff] for Logistics [June 1995-October 1996]. 1 had observed his reaction to some of the business

management problems that AFMC had encountered. Primarily that was in the working capital fund, but in general there was a sense that things cost too much, and "How come AFMC can't figure out ways to reduce its costs?" There were also the inputs that both he and the Secretary [of the Air Force] would get-sometimes from the OSD [Office of the Secretary of Defense] folks and sometimes from contractors – who often said "You guys are really inefficient, and we could do this a lot better." So there was that constant pressure. Sometimes I observed his reaction to all of that to be negative, so it seemed to me that that was the issue that I should try to take on -- having AFMC seen as a command that could manage effectively, even when the outcomes weren't always good. That seemed like a goal that we should strive for.

THOMPSON: So managerial reform was your own initiative; you weren't carrying out the instructions of higher headquarters?

BABBITT: No, I wasn't carrying out the instructions of higher headquarters. As I said before, that input was primarily my observation of their concern — and sometimes discontent. It wasn't necessarily specific guidance. To some extent, my commitment to these things started a long time ago, and I've always had a sensitivity that people should be responsible not only for the output, but for the resources that they consume to get the job done. Sometimes in the Air Force we have trained ourselves not to be responsible for the resources; that becomes somebody else's problem.

In the two opportunities that I had to work in the Defense Logistics Agency, I worked with some folks — principally Naval officers, to be honest with you — who had practiced that kind of management in the Navy for some time. It was sort of a revelation to me, because things that I had always been taught to believe weren't possible in the military seemed to be possible. In fact, they were doing it and doing it rather well. I think that was a real awakening for me.

I spent a total of a little over two years in DLA, on two different assignments, and I think that's where this came from. I saw that when you established those business relationships that included a contract, if you will — of what was expected and how many resources were going to be consumed in the process — it allowed considerably more decentralization of management. There was a lot less need for day-to-day management reports and checking all the indicators, because people understood what their responsibility was, and it was good for a year. They then had the flexibility to go get the job done. I actually saw some pretty good management in DLA by people who I think felt empowered by that kind of thing, so I was encouraged to believe that that would work at AFMC too.

THOMPSON: How would you typify your objectives for the AFMC when you took over? Could you state maybe three or four major objectives?

BABBITT: I'll tell you I one thing that was particularly acute was two years of significant financial loses in the two major working-capital funds -- supply and depot maintenance. Remember I had been in the air staff for 95-96 watching the chief and the secretary and all of them anguish over these huge financial loses. They were especially frustrated because nobody could explain them. Here we were losing money. It was always a surprise when we lost it and nobody knew why. It was a terrible situation and clearly an indication that nobody was really managing financial performance. The working-capital fund organizations were just doing what they do and then adding up the costs and hoping it came out in the end. So that I felt these losses were something I had to take on. I had to stop losing money in the two working capital funds, which is kind of a short term focus, but it was an acute problem. If I couldn't fix that problem that the rest was just talk.

I was at the DLA, cooling my heels awaiting confirmation. I worried that if I went into AFMC and only focused on saving money or stopping the bleeding in supply and depot maintenance, the rest of the command would ignore me. They would

say he is not interested in us. Besides that, as a guy that grew up in Air Force maintenance and logistics, he doesn't know anything about us anyway. There were all those people who were doing acquisition management, test and evaluation, R&D management, and managing the bases, which is a big infrastructure management issue, because we have a lot of bases. They were going to feel like I wasn't their commander so I was also trying to figure out how to use the thoughts that I had about how we were going to improve supply and maintenance and see if those ideas couldn't be extended to the others some way.

That is why I eventually decided to call those other things businesses, just supply and depot maintenance, and to treat them like businesses from the out set. The more I thought about it, the more this seemed like a reasonable thing to do. We have talked about this one before, remember? Especially in the acquisition business, we have this dual reporting responsibility under Goldwater-Nichols: we have people in OSD who use our program managers to achieve program goals. The way I thought I could contribute here was to say. OK. that is fair enough. I am not in that chain of command. But think of this as a business where we are selling program management services and my company has to be sure it provides good program management activities. It is not the programs themselves, it's not the individual investment decisions, I am involved in – that is a corporate responsibility. My job is seeing that those investment programs are well managed. It is the overall process of providing good program management, well trained people, good information infrastructure, good procedures, and all those kind of things. Moreover, it seemed to me that you could say the same thing about test and evaluation and even about running the Air Force Research Labs.

So I thought well OK Lets call them all businesses that way I would stand a chance of convincing everybody that I was interested in them and interested in what they did, not just the supply and depot maintenance people, and that was how the whole thing got started at least in my mind. I think that the trick for me was I knew that people worked very hard in the military at achieving what they

think are the goals. And, they think that way, because that what they have been punished or rewarded for in the past.

So it seemed to me that the main objective was to change the way people are motivated and if you can change the way they are motivated I think they would work their ass off. They will work long hours, work weekends, and they don't require any additional pay. That's always been amazing to me. They don't require any additional pay just a pat on the back and some psychological reward for what they do. But you have to give them the right motivation, and it seemed to me that this business metaphor allowed us to begin this process of changing the way they thought about what their goals were. And so that was a major part of what I had in mind. I adopted the business metaphor because it allowed me to make them all the same and then to change the way they were motivated because that is really what is holding us back from making progress. It is not because they are bad people or because they are less capable than people who work in private industry it is just that we don't motivate them right.

THOMPSON: I have been amazed at the quality of people I have met wandering around your command. I met a lot of very impressive people, every bit as smart and motivated as the top managers and staff people I have met in the private sector. I have also been amazed sometimes at the jobs they were doing. For example, there was one fellow I met, a major I think, and this is really off the subject, who had just finished his Ph.D. in operations research. This guy knew as much about activity costing as anyone I know. He was really interested in what you were trying to do and we had several exchanges that were very useful to me. But what was his job?" Organizing and carrying out the Air Force marathon. I don't know if that is an exceptional case but it really seemed strange to me.

BABBITT: Laugh. That was probably 1997, which was the 50th anniversary of the Air Force. The ASC guys had gotten very enthusiastic about the idea that history of WPB and the Wright brothers. They thought that a way to focus on the

50th anniversary of the Air Force was to begin a tradition of holding an annual marathon. An idea borrowed obviously from the Marine Corps. But if we put emphasis on it and if we really did a good job of organizing, which the Marine Corps does, that it could grow every year so that in a period of 10 or 15 years it could be a big event that each year brought attention to the Air Force and helped put the Air Force in the focus of public's eye and so they did spend a lot of effort putting that together.

It doesn't particularly surprise me that they would have picked somebody of that quality to put this thing together but I do I understand exactly what you mean. Here we were struggling to do the very kind of things that this guy had just spent a lot of time learning how to do and we didn't use him for that.

THOMPSON: You mentioned three good objectives: Stop losing money in the working capital funds, try to apply the same approach throughout the command, and change the motivation of the managers and the workforce throughout the command by means of the business metaphor. Which of these do you think were accomplished?

BABBITT: The first two were accomplished. We stopped losing money in 1999. I don't think we lost money in 2000. On applying the business management approach throughout the command I actually had pretty good success with that I thought.

Unfortunately, the loss of money could come back at any time. [When I left,], we were just beginning to understand the underlying reasons for the losses and some of those reasons still haven't been fixed, including some fundamental accounting problems. So there is still the potential to lose money unexpectedly. But I used this temporary success to gain creditability for the command and for what we were doing in the air staff. I would tell them that we did what we said we would do. We aren't losing money anymore and we aren't delivering less capability, less

logistical support to the field. In fact we delivered more logistics. Not as much as we should, but we are delivering more and not losing money so that certainly a move in the right direction. And the Secretary accepted it and so did the Chief and, to be honest with you, the MAJCOM commanders in the Corona meetings three times a year accepted it too.

I never got much grief from the MAJCOM commanders. They felt that we were moving in the right direction. There were always a hue and cry from within the operating commands, from their maintenance people especially, who were trying to fix airplanes, that we weren't supplying them with what they needed. True enough, we weren't. And so the MAJCOM commanders had to support their people. But in the private sessions with just the 4 stars there and the Secretary, I always felt like there was we had a certain amount of creditability and our credibility was growing, in part because we managed to get our arms around the financial problems and we weren't losing money any more. So I think I kind of rate that one as success.

On the third objective I couldn't claim more than just a little bit of success. I think the idea was accepted in a lot of people's minds. Now Les [Lyles, Babbitt's successor as AFMC commander] has stopped calling product areas business areas but apparently has not changed the purpose of that designation. He calls them mission areas. I have said to several people since I heard about that, I think that if I were still there I might have done the same thing because I was getting so much flack about this idea that AFMC was a business. I said a minute ago I really underestimated the emotional resistance that the business metaphor would induce. But Les' name change hasn't apparently changed the idea that each one of these areas is a separate strategic activity of AFMC -- each with a distinct set of processes and procedures, a trained work force, and services and products that they deliver to other people. Since they truly can be considered business activities, there ought to be a way to measure their outputs and the resource inputs and come

up with some sort of a metric of performance and cost for each. I think that idea was increasingly accepted.

These were things that appeared to me in the beginning to be new to people, and when I left [AFMC] they didn't appear to be unusual. They didn't spend a lot of time questioning them; they would just say that's a routine part of getting the job done. I think that's progress. At the end of my tenure I spent less time talking about the principles of business management and more about the actual practice of it: What are your goals for this year, and how are you doing, and are we going to get to the end of the year on time? So 1 think there was progress in that regard. I think people did feel more in charge of those resources, and that's good. This was actually a transition in changing people's expectation about how they do their job. My observation in other organizations has been that once that expectation changes, it tends to be self-sustaining.

That's kind of the answer to the second part too. I don't really think, necessarily, that every word I've used or every specific management review will remain. Those are unique to me. But it appears that there are enough people who have embraced [the business management approach] as the way that they think about their job, that they will continue to do it that way — not because anybody tells them to, but because they figure that's a better way to do it. It's actually a much more fun way to work, and I think people feel more empowered in that environment.

THOMPSON: Did you perceive your objectives any differently after you came to AFMC than when you were planning earlier to assume to command?

BABBITT: I pretty much stuck to my guns on that. I felt that this was an approach that was easy to understand initially. It would be hard to actually implement, but there was a goal there that people could understand, and I felt like I had to say it over and over again to enough people in order to build sort of a

critical mass of people who were pointed in the right direction. And that's what I set out doing for the first six months -- just saying it over and over again, and using the same briefing charts over and over again, to try to make people believe that that would be my focus and that I would stick with it.

So, I didn't really change. I was surprised at this, because it certainly crossed my mind that events would overtake me and that no matter what agenda I wanted to set, that those events would suck me into something else. For one reason or another, that really didn't happen, and I was able to stick with that agenda pretty consistently.

THOMPSON: So you mainly focused you attention on the managerial reform agenda?

BABBITT: Yes, I think that has to be the case. In the process, I feel like I participated in and worked a lot of issues that you would think are more traditionally the mission of AFMC. I tried to make sure I wasn't completely seen as ignoring the mission just in trying to get business practices instituted, but a considerable amount of my energy went into trying to do just that. So I suspect that that's the way most people see it. By the comments that people have made to me over the years, and especially now that I'm retired, it does appear pretty clear to me that that's the way people perceive me — as somebody who was interested in moving in the direction of better business practices.

THOMPSON: A leader can only focus on only so many things.

BABBITT: I've heard that from a number of people. Some that I've known and others that I've just read about, that have been in charge of big organizations, have said if you focus on everything you'll dilute your efforts to the point where you won't get anything done. And I think that's probably pretty good advice. I have to admit to a little regret in that I know in my own mind I could have focused more

on the mission, and I wish that it wasn't necessary to be known only for business management in order to focus on business management. But I suspect that's a tradeoff you just have to make. I think in a big organization you can only focus on so many things and be effective, and, that seemed to me to be the area where there was the biggest payoff.

THOMPSON: What was the biggest constraint that you had to deal with in selling your reform agenda?

BABBITT: Where it was least accepted was in some parts of the HQ staffs of the various centers. And there again, this is a motivational thing. As I explained [to Michael Barzelay] when I was still at the DLA, I didn't feel I could go completely to a multi-divisional organization approach. The military tradition of having a geographical center commander responsible for all the activity at a given base was too much an inherent part of how we are trained as military people for me to try to do away with it. So I had to retain the centers. But, because there were common business activities going on across all of these centers, I had to have some aspects of the divisional approach to take advantage of the business metaphor. If I had tried to do away with the centers I would have spent my whole three years fighting battles that that action had generated instead of doing other things. So I didn't, but fair enough, that decision was also was the source of a lot of resistance to what I wanted to do.

The centers never could accept divisionalization Even the center commander's sometimes objected [to the concept]-- at least in my mind, it was the center

commanders [who were doing the objecting]. They would say, “what the hell is all this damn business stuff for?” “Am I in charge or not?” I said, sure you are in charge. But you have several businesses at your center, too, and you have to think about those different products and services. Well, they didn't want to do that They just wanted to kind of mask it over and say this is Los Angeles Air Force Station, the Space and Missile Center or this is Edwards Air Force Base, the Air Force Flight Test Center. Well, that is all well and good, but there are different things that go on here and you have to separate them. They would resist that, but overall it seemed to me people got into the habit of talking about those separate business areas and they began to develop in their own mind an appreciation of the fact that there were different things going on in those different business areas.

Surprisingly one of the areas that I thought would be hard to change and I'd gone to AFMC with the idea that if they were too resistant, I just wasn't going to spend too much time on it, was the research and development guys. But Air Force Research Labs turned out to be one of the best supporters of this and the way they taught themselves to accept it was that I wasn't telling them how to do research into rocket fuel or how to do research into materials. My job was to say "How much does it cost to manage this research effort." The idea was that 80 percent of the research is not done in house anyway, only 20 percent is done in-house. So I asked them, "What is the value added service the Air Force Research Labs provide here?” “Why don't we just give the money directly to the Universities and the industry and why do we need an Air Force Research Lab?" The answer came

back, “Well somebody has to formulate the long term research goals of the Air Force.” Those probably ought to be people that are scientists and engineers. And then since we do have 80 percent of the research contracted out there is an oversight responsibility. We've got to be sure we are getting value for our money and then, third, once the research is done. There is a big engineering effort in trying to transition what was research into applications in weapon's systems. There has to be a group of people who can manage that transition So we agreed those would be the three activities, the three outputs, if you will the three value chains for the Air Force Research Labs. Now that costs money, there are resources consumed in that process. Let’s see if we can begin to relate the resources to the level of the output, and we will see where it takes us. Maybe we will learn something about ourselves To be honest with you, they learned a lot about themselves.

THOMPSON: What are some of the kinds of things that they learned?

BABBITT: They learned that they had excess facilities and that, when they began to look at the cost to do business, there were really things that they should get rid of. They had a way to do it because they were the only one of the business areas that was truly divisional. There were no center commanders, installation commanders, that were part of the Air Force Research Labs. They were always tenets on someone else's base, and they could give their excess facilities back to the center Commander. And that's what they began to do. And they moved out of thousands and thousands of square foot of unused buildings and began to consolidate their operations and they reduced the size of their work force not

because of arbitrary budget cuts but because they didn't need the work force. And I was pretty pleased with that. That was a good motivation.

The way they got to it was they had 10 research directorates and when they began to look at the cost per dollar managed of research or what ever other methods they could come up with, they would see wide variations in these things, between these 10 technology directors. And then when they'd dig deeper. Sometimes they found explanations for it. Some kinds of research tend to be government facility intensive. Rocket fuel testing, for example, is not the kind of thing you can do in at the average university. You need someplace like Edward's Air Force Base out in the desert to do that. Whereas, other kinds of research can be carried out in a materials lab. Those kinds of research don't have to be nearly as facility intensive, so you get different costs associated with that. Those differences were explainable and the labs began to take pride in the fact that they could explain what caused differences in costs. They said you know we need to reduce our costs and they did. I was pretty impressed.

THOMPSON: That sounds to me like a pretty big change in attitudes. How do you explain it?

BABBITT: What I asked them to do didn't change the way they saw themselves or their missions. I think that they were still principally researchers. I mean most of the people who work in the AFRL are engineers and scientists and their passion, what the come to work for every day, is to do their research. I didn't change that dramatically but I did tell them that there is another part of what you do here that requires at least some of your attention and that is understanding and managing costs. I don't think they saw it as a big change in attitude. They seemed to have very little trouble accepting the business metaphor. Also, as I noted, the center/business issue didn't get in the way of fixing things. Finally, their accounting problem was less severe.

The accounting things I still feel are at the root of some of the apparent bad behavior that DoD employees are accused of. If we can get that straight,
I think they can be equally motivated -- sometimes more strongly motivated than people in business, simply because their motivation comes from the success of their organization and sometimes to getting a pat on the back. That is really what industry would like to have people do is be motivated for the success of the organization. Financial rewards tend to make people look to individual success. So I think we have a really good thing going here. But without the tools to do thw job its so damn frustrating.

In my current work with KPMG, even in the few months that I have been there, I have tried to play this up. There is a wonderful opportunity for consultants to bring some sense to all of this by helping people make the conversion to better accounting practices.

THOMPSON: Where did your views about accounting come from? You just basically told me that most Air Force officers don't like to think about costs and even many people in financial management area don't know much about managerial accounting.

BABBITT: I never had an accounting course. My undergraduate degree was in engineering. I guess the farthest back I can trace this was (it sounds kind of silly) in my senior year in college we had an engineering design course, which was a practical lab in which you and a partner had to design something to a set of design requirements that the professor provides at the beginning of the quarter and it is totally unstructured. You really don't come back to class until the end, and it was not a particularly sophisticated task and one that each of us, while we were listening I recall to the design requirements, thought, "this is going to be easy." "We are going to have this done in no time at all." But at the end he said, "Oh and it can only cost," back then, "$.20 to manufacture." Well that was a design

constraint. It was cost that drove the design, not the technical challenge. There were probably 20 good ways to get the job done, but there were not many ways to get it done for 20 cents. Yet, clearly that is what business is all about -- understanding what markets are out there. Markets are a measure of value and so an engineering solution that ignores the value is really a pretty poor engineering solution. And I guess that is as far back as I can remember being interested in trying to understand cost because it is an important part of value. Not the total but if you don't understand that cost is at least half of what you are trying to figure out, you don't understand value.

And I guess when I went to AFIT we had a course in government financial management, which was the first time I was forced to think about the history of appropriation management as a way of providing resources. And then I can recall in 1969 we talked a little bit about what at the time were called revolving funds or stock funds. I think it was about 1968. It was a new government program but was probably something that evolved from earlier years but I didn't hear about it until 1968. I think it was called the resource management program. RMS had a lot of this revolving fund flavor to it, but it was an attempt to say things cost some thing to produce and deliver. And you need to be keeping track of that and somehow the amount of resources that you need to get your job done is a function of that unit cost over time. I can remember being stationed at an air base in England as an aircraft maintenance officer and reading all the hype that came out about it. And being intrigued by what I thought that was probably a way that the Air Force should move.

I just always had an interest in trying to understand cost. Maybe because I grew up in maintenance and logistics, where you encounter problems like this. Then as time has gone by I kept hearing that the private sector does this better than the people in government. Well that riles up my competitive juices. I want to show that we can do just as good. Well, I think we could except there are some obstacles to overcome. The bottom line is that I don't see how we can say we are

managing anything, if somehow we are not concerned by what it costs to deliver that service. Yet it is perfectly acceptable in some people's minds to say my job is not to worry about the cost, my job is to make sure the job gets done. In effect saying cost be damned. That doesn't make any sense. I have never been a student of accounting, but I think it is just something that has come up by necessity. You can't make progress if you don't understand what it costs.

I want to stress that my aim was to get people to understand costs. I figured that if they understood what caused costs, they could explain them. If they could explain them, they could manage them.

THOMPSON: You use a lot of concepts from managerial and financial accounting. Where did you encounter these ideas?

BABBITT: I know this sounds goofy, but, when confronted with a need to know something about managerial accounting and principles of accounting, I just went to the store and bought a book and read it. So I don't want to claim too much knowledge. You wouldn't need to take much delving into accounting to get beyond my level of knowledge, but in terms of the principles of how that should effect a manager, I think I do understand them. The accounting part I just got from reading books and continuing education courses that the Air Force has provided.

Most of my jobs have been in big organizations that have tried to implement some kind of cost accounting. In DLA for instance in my first tour over there in 1994, we did an ABC exercise -- in fact I think it was KPMG that was the consultant that helped us with that. I remember reading the material on what we were trying to achieve and how we were going to do it. We were trying to figure out which activities drove costs and whether they were value-adding or not. We would pass out the forms and say, "Tell us which one of you guys is doing non-value added activities?" Fill in the blanks. And then we would get the forms back and nobody

was doing non-value activities, and then we would all act surprised as if you guys don't understand the rules. And I think the answer was we didn't understand simple human motivation. You just can't do business that way.

I think I tried my best to understand ABC because it was clear that other people were very enthusiastic about it. At least in that instance it was a total failure and I was trying to understand what circumstances do you have to create in order for this to be a useful, successful tool. And I think you have to create that mind set where somebody knows and feels that they are responsible for the inputs and the outputs and once you are in that box — once you see that as your problem then ABC becomes a useful way to organize your thoughts and begin to zero in on where you might make progress.

THOMPSON: Did you take a lot of what you found at AFMC as given?

BABBITT: I did. There were two AFMC commanders before me General [Henry "Butch"] Viccellio [Jr.] and General [Ronald W.]Yates. Ron Yates was there for 3 years, and he was the systems command commander for the two years before that. So he had a long run, and he was the first commander of AFFC. He organized -- I am trying to think what they called them, but can't. Anyway, the business areas that I ultimately identified had their origins in the way Yates had organized AFMC. He didn't have quite as many of them as I did. Yates came from a R&D, Test & Evaluation background and he just lumped maintenance and supply together as sustainment. He didn't make the distinction between these industrial processes even though there were two separate working capital funds, two separate sets of books, two complete separate financial charters. I thought that it was efficient to divide them and say there are two different businesses here.

THOMPSON: They do different things and have different customers too, but he saw them as fundamentally alike?

BABBITT: Yes. I understand that cultural thing. So he called them SDIO. I don't remember what that acronym stands for, but it was just one activity. Then he had program management and test and evaluation, which we retained, research and development, which we retained, and base operations, which we retained. He didn't have anything for the CIO function. That was a small working capital fund that was created later, after he left the command. Since it had a separate financial charter, I felt compelled to make it a separate business. That was what we began calling the software factory. These were people who were in the organic software business. They managed some of our older legacy systems as well. And they were by DoD direction an inside working capital fund, so they had to understand their costs well enough to be able to bill their customers. They billed by activity.

So really all I did was take the structure that Yates had already created and expanded the number of areas. Then I put the emphasis on resource management rather than funding advocacy, saying, "True enough, you are going to be the ones that prepare budgets and go advocate them, but you are also going to be the people to try to match these resources to the outputs and be able to come up with the cost measures." He had not done that so it seemed to me that was a logical enough extension and we used enough of the same words that I felt we weren't breaking with the old.

We also utilized the strategic planning that the core people, who had been at AFMC when it was founded and Yates was the commander, had put together. They had outlined set of goals and mission statements saying that this is what we are all about. And we didn't change this, but we had a long commander's conference where we talked and everyone had an idea how we might change it. In the end we looked at all the alternatives and said "Are any of those alternatives any better than what we already had?" And the consensus was "No they are not" Well, then lets not change it. Let's just leave those goals to give some continuity with past here. We are not trying to just change everything. We want to say keep what is good and evolve what needs to be evolved into something else. So we

kept them.

I think Butch was there for two years, and I think he knew he was just going to be there two years. I know for me, three years didn't seem like a long enough time to make changes in a big organization. I am sure he felt even more strapped. He didn't change much of the organization. He focused mainly on the logistics part. I think his big contribution was to the logistics process. He began to get people thinking about the fact that you have to get down there managing at the shop floor level in maintenance and supply if you are going to understand what is going on. And we tried to keep all of that. In fact, he had invented some acronyms that described improvements at the depot repair process that we kept and we keep those goals and we kept the names of the processes. We kept the same management structure because it was good stuff. That was what we should have been doing. Improving cycle time in the depot repair process.

I never felt like we threw anything out or said that group of folks had a totally wrong idea. We weren't going to go off in another direction altogether. What was always in my mind and I hope it was coming across that way was that we were just evolving. And we used a lot of the terms that had been used from 1992 when Ron Yates took command.

The idea of adding cost management responsibility was something that hadn't been there before. I think that probably is the biggest thing I did. If I were to guess what Les Lyles might say, continuing this story, it would be that what Babbitt added was trying to put cost management into this overall management process.

THOMPSON:: I think you have addressed the issue of mismatches between your approach to controlling, reporting, and resource allocation and AFMC's structure of authority and responsibility, culture, and staffing. How about tensions with the existing DOD budget process, especially the PPBS process?

BABBITT: It is hard for me to separate the appropriations and accounting processes from PPBS The PPPS process was conceptually consistent with what I wanted to do. But fact that every thing was in a pigeon hole seriously complicated matters. What we wanted to say to people was we produce these outputs and, to simplify it, here is the unit cost of this output, but it may require mulltiple inputs [objects of expenditure] from a dozen different appropriations [acccounts] to achieve that output. And so when we come in with a budget on cost basis, we want to lay claim to resources at that unit cost to deliver what we think will be the demand of our customer for those outputs. And then we want to be able to move the money to the right resource accounts to make that happen. We don't want to have to independently fight multiple resource managers as if they were totally unrelated activities.

Our guys in the plans shop spent a lot of time in the Pentagon over a period of three years arguing these point. And over time what won the day was we didn't ask for more money. In fact, we were the only command that didn't ask for more money. Because the other commands in my mind totally lost any fiscal discipline and asked for billions of dollars more than what was in their fiscal guidance. That caused tensions between the air staff and those other commands. So it was all silly games and not the way decisions ought to be made. But we became friends of the air staff in that regard because we have not asked for more than was available, and the others had, and so they tended to say OK AFMC played the game right, even though we don't understand completely why they asked for money in these areas, we are going to bless their POM and allow it to go up to the JCS and the OSD the way they submitted it. And we'll spend our time working with these other commands that asked for billions of dollars more than was in their fiscal guidance. That got us over that first hump.

Last summer there was apparently a movement in the air staff to try to change the whole air force program to doing business that way. In other words try to find

ways to provide incentives to the MAJCOMS not to come in with proposals that are billions of dollars more than what is in the budget. I think in part that they are trying to do that because they have seen AFMC do it over a period time and they know it is possible to come in that way.

Now I will tell you when we came in on budget and we also said this is the level of service we intend to provide. In some cases it was a lower level of service that the air staff wanted us to provide. I think that puts you in a reasonable negotiating position. You can say "OK we would be happy to provide that, but that doesn't come for free." "We know what the unit of cost is." "If you want this level of service you are going to have to add that". And then they say, "We don't have the money." "Well, OK then maybe you really don't want that increased level of service." "Maybe we ought to size ourselves to provide this level of service." Those hard choices are frustrating, but otherwise you don't make real decisions you just play games. Too often, I think what happens in the military (in all the services right now). This is really what you hear when you read what young people in the military are saying about senior leadership is we have disconnected expectations for performance and the level of resources we've given them. And some how our system lets us do that as senior leaders, without giving up the blame for doing it when failure occurs. But when it is given to them that way there's nothing they can do. I mean, they can't possibly deliver this level of service for this level of funding. So they really turn against the leadership. At least that's what I see that all the time in the newspaper. I think that is going to have to be fixed

THOMPSON: This is off the subject, but do you think this is one of the reasons that so many of the best young people are leaving the military?

BABBITT: Well, that and there are so many other alternatives. If there weren't any alternatives then I think they would approach it differently. It is a particularly bad time to be pissing people off because they do have other alternatives.

THOMPSON: You mentioned that there was a fair amount of the uptake of your cost management approach was uneven across the command. How do you account for that? Is it a matter of incentives or is it a matter of culture or staffing or what?

BABBITT: The only thing that I could attribute it to was sort of like the weather or a biological process. There was some sort of cause, an almost insignificant thing that turned it into a positive event at one location. And then it would blossom and grow. In other areas we could never get that initial seed we couldn't get the right person interested enough to try to make it successful. To get a pat on the back. To be reinforced to have other people join in.

The guys in the end that were the most disappointing to me were the test and evaluation guys. You have to understand, this whole business of flight test has a tradition that goes back to "the right stuff" people, like Chuck Yeager, WWII aces some of them and all expert pilot. They got into the flight test business because they were young and foolhardy and willing to risk their lives and flight test was really risking your life in the 50's and early jet aircraft. They went out and did some secret stuff at Edward's and this whole institution that has grown up around that.

As we engineer some of these systems nowadays, that high-risk, trial and error way of doing flight tests, isn't the way we do engineering. We do a lot more simulation and there are things you can simulate now with high-speed computers that couldn't be done that way in the past. Even where you do flight tests it has become much more managed risk. In fact, even low-risk because it's very well thought out and very methodical. Some of the glamour may have gone out of it Sometimes the people who run programs aren't much interested in the people who are experts in test and evaluations. So you have this community of people with a proud tradition and a really important system-engineering process that they feel is

threatened by people who don't understand their business and are not willing to recognize how important it is to the success of the Air Force. And that was their focus.

I am trying to sit over here and say, OK, but I want you to manage the value-added service that you provide too. You sell your test and evaluation services to program offices and to industry and to all sorts of people. How much does it cost? I am also saying that you are going to have to make some tough decisions Are you keeping things and spending money on them because they add current value to your customers or because they are important to the history of flight tests at Edwards? If you want to create a museum, call it a museum and let's figure out how to fund a museum. Let's not try to keep this stuff operational if it doesn't have any value anymore.

That wasn't easily accepted and they could reject it because of an accounting trick. At least this is what I attribute it to. In the flight-test business in the Air Force, over the years, in fact it true in almost all the services now The Navy being sort of the odd person out. We take some portion of our cost and we cover it with an appropriation that comes through AFMC. So in my budget as the AFMC Commander, I had about half of the cost of all flight test activity in the form of a direct appropriation, not tied to any output at all, as if it were intended to cover fixed costs. Then the other portion of the cost of flight test is paid for by reimbursement from customers. So the F-22 program goes out and uses Edward's. It has to pay for at some rate for flight test operations. The goal of the agency out there is to collect enough so that this, plus the part they got from me, adds up to their total cost.

But there is no definition of what activities get paid for with this kind of money. So it motivates people to be mischievous. If they have money in this account, they'll spend it on what ever they think the other guy won't pay for. The money just keeps moving around like the pea in a shell game and you never know exactly

where the pea is. You can't get them to come clean on what it costs to deliver services. If you ever force them into that stark reality then they will say "You don't understand, if we force people to pay [incremental cost] they won't do flight test." "They will develop systems without testing." Will they? There are some overall risks that program managers have to work with too. The attitude of the flight test community is if we didn't beat them into spending the money on flight test they wouldn't do it and, therefore, there would be much more risk on our weapon's systems and risks that they wouldn't work and therefore the Air Force would fail. They have this circular way of thinking things, and I never was successful at working them out of that.

To me I could live with the two separate sources of funding as long as we sat down and discussed and agreed to it ahead of time what things get paid for in this pot of money that is managed by me. They take all labor costs out of that kind of money.

THOMPSON: What has been the reaction to your reforms at the Air Staff and the MAJCOM [major command] levels?

BABBITT: I think it's mixed. The last time we went through the POM [Program Objective Memorandum], and because we submitted the FY 02 POM based on these principles that did not request that the Air Force add a lot of money to the existing program, there were some congratulations and "Thanks very much." But I don't know that that was anything more than just "Thanks for not giving me a problem," as opposed to "I think that's the right way to manage."

As far as the MAJCOMs go, I don't think there is very much acceptance of this. Maybe, it's not the right way to manage other MAJCOMs. Maybe it only works in a command like AFMC — or maybe AETC [Air Education and Training Command] — because we're a support command and many of our practices are businesslike, and our products are businesslike products. But I think that the Air

Force resists associating business management with the command of the mission. In most peoples' minds, they are two different things, and we shouldn't be doing business management; we're supposed to be commanders. I don't think there is very good acceptance of it.

THOMPSON: I'd like to turn for a few minutes to the formation of Air Force Materiel Command in 1992. There were basically two aspects to the establishment of the command. One of these was the merger of Air Force Systems Command and Air Force Logistics Command into Air Force Materiel Command. Now that we're eight years away from that event, would you comment on the effectiveness of this aspect of the merger? What went right? What went wrong? What could have been done better?

BABBITT: I think it generally went right. It was very hard at the time, because each of the commands had a long history and had different ways of getting the job done. Any time a command is eliminated, there is a feeling of loss. Each of us grows up in a career, attaching ourselves to institutions and feeling loyalty to those institutions and understanding those processes. So when a command goes away, some of us goes away, too, and I think that's why it's resisted as much as it is. I remember about that same time that Strategic Air Command went away-and certainly that was a gut-wrenching experience-for an awful lot of people who had grown up in the Air Force, it was almost inconceivable that Strategic Air Command could go away.

But we did make our way through that, and looking back on it now-eight years later -- I don't think the merger of the two commands is an issue any more. But I want to qualify that -- I think the fact that we have a single headquarters has made us somewhat more efficient. We have less overhead overall than we would have had if we were two separate commands. We had a significant downsizing to go through. We have a chart that we use that looks back, I think to 1986 or 1987, until now. Just looking at manpower, I think we've reduced by 51 percent. Cutting

a big institution in half is a pretty gut-wrenching experience. We probably couldn't successfully have done that as two separate commands. So I think, overall, that combining the two commands has worked pretty well.

There is an issue that probably still needs to be worked. It's not that it hasn't worked well; it's just that it isn't done. We still have to make it work. [That is] the reconciliation of how we conduct program management. We still have, very near the surface, all the old procedures from AFLC [Air Force Logistics Command] and Systems Command, and you don't have to go very deep in the organization before you find that in that area there are still two separate commands.

I'm going to ad lib something and not directly answer your question here, maybe, but that leads me to two conclusions. I think that it has convinced me that reorganizing is not a way to solve or make significant improvement in processes. In fact, I think it's a way to just bury them a little deeper in the organization, so you don't have to look at them. That's about all reorganization does. But it is still possible that we can continue to make progress on this by simply focusing on the issues of program management -- how we do it and how we can make that process better.

If we're going to focus in that way, we're going to have to quit making certain distinctions. Program management -- whether it's done in a product center or a logistics center -- is still program management, and it ought to be done the AFMC way, not the AFLC or the Systems Command way. I think there's a lot of other buzz words and previous labels that may be perfectly good words, and they may have had good and useful intent at the time, but they now have become labels for the old way to do business. When we persist in using those labels, we almost invariably draw ourselves back into the old arguments. So we have to give serious thought to not letting that happen; to try to carve out the part of AFMC that still suffers from this problem, focus on it, and make progress. I would argue that, in my mind, that was part of the thinking that I went through to figure out what are

the ways to categorize the outputs of AFMC without making reference to the old Systems Command and AFLC.

If you think about our eight business areas, only has problems that result of the merger of the two commands. Test and evaluation is not an issue that we debate in terms of "How did we do it in AFLC and Systems Command?" because we only really did it in Systems Command. And science and technology is in the same category. Supply management and depot maintenance is in the same category.

Seven of our eight businesses are not at issue there, but what we call product support is where this problem rests. So we have 21,000 of our nearly 90,000 employees who work in the product support business area, and they work at the product centers and the logistics centers. My goal would be to focus on that and not to try to make it an ownership issue [of "Who's in charge here? Should we do it at the logistics center or the products center?" All of that just draws you back into the old arguments that say, "What processes are we doing across the life cycle of the weapons system?" -- to include fielded weapons systems support, which is an important program management responsibility. How should we be doing that, and how can we better improve those processes? Whatever we all agree on for now ought to be the way that's done wherever that's done-it makes no difference. For now, quit focusing on location and what the tradition was at that location, and focus on the process.

THOMPSON: I wanted to talk a bit about another principle that was very important at the establishment of AFMC -- Integrated Weapons System Management [IWSM]. IWSM has been controversial from its inception. Even before AFMC was established, the product center commanders complained that under IWSM their centers would lose their workload to the Air Logistics Centers and would then atrophy. To what extent has IWSM been implemented? Did IWSM evolve into something else, or would IWSM be considered a success or failure?

Was there anything that could or should have been done to achieve the potential of IWSM?

BABBITT: I think IWSM is one of those terms that, in the long run, it would be better if we did away with it, simply because it has all that old baggage. I wasn't in either Logistics Command or Systems Command at the time the concept was promulgated, but I was kind of around the issue as a MAJCOM LG [Director of Logistics, Air Education and Training Command, June 1990-July 1992] and then working in the Pentagon. Although my background primarily is on the logistics side, I think I would agree with the criticism that came from the Systems Command side, that IWSM -- had it been carried out in its purest sense-would have caused product centers to atrophy. Advocates of IWSM claimed [that] program management, supply management, and depot maintenance management had to be done together, and, therefore, had to be co-located; to be done effectively. That was a hypothesis.

Given that, we were not going to establish depot maintenance capability -- and probably not supply management capability either – at any of our product centers. IWSM more or less said that fielded weapons systems could only be managed at logistics centers -- which I think was what the advocates intended.

We still suffer from that assertion, because IWSM is still seen that way, and it continues to be pursued that way so that any attempt to separate program management from supply chain management from depot maintenance management is seen as tearing apart the concept of IWSM. I've been accused of that, because I have actively encouraged the separation of those three business areas so that the interfaces could be clearly and distinctively managed with written agreements -- rather than hiding it within an organizational umbrella and assuming that because all of those things worked for one person, that the interfaces were being managed. My discovery has been that when it's hidden

inside that organizational entity, there is no guarantee at all that those interfaces are being managed. So I think IWSM is a problem.

Now, there's another way to look at this issue. Because we're all political animals, I suppose, the term has been gradually redefined in a very subtle way so that now IWSM is often times advocated by people who come from product centers. But in their mind, it has a different meaning -- it means the single manager is in charge, and the single manager is in charge no matter where the work is done. Of course, that's another problem, because of the idea that if you are in charge of something, it means that all the people have to work for you. O course, that is kind of a bankrupt concept. If that were true, we couldn't have contractors do anything for us, because those people don't work for us; they have a contractual relationship with us.

So I tried to argue -- as I argued with the logistics centers -- that they need to break apart what they call their IWSM organizations and make those interfaces clear and written. I argued also with the product centers that they needed to quit saying that IWSM means everybody needs to work for them and recognize that they can achieve through written agreement the necessary exchange of responsibility and accountability, just like they do with the contractors. That was the best I could do in the time that I had to try to unravel some of the IWSM thing.

I don't think IWSM is a particularly useful concept, but I do think having single managers for programs is a useful concept, and I do recognize that in some cases for fielded weapons systems, there is great benefit in having some people in the program management business near where we do the heavy maintenance on airplanes, so that we can get a little hands-on sense of what is going on.

THOMPSON: I'd like to switch to something called the Centers of Excellence concept, which was developed early in your tenure as AFMC commander. It was

a tool that appeared to make IWSM work. Was the Centers of Excellence indeed a logical outgrowth of IWSM, or was it drawn up to enable the command to function as it was designed to function? Who was responsible for originating the Centers of Excellence concept?

BABBITT: I will be honest with you-I don't actually remember who invented this specific concept or gave it a name. It did seem to follow quite naturally from the idea of looking at the product support business area and dividing up what we do there into its logical pieces. It's quite clear that we have some kind of weapons systems that are aeronautical and some that are space- and missile-based, and you can come to the logical extension of that to where you account for the four product centers [Aeronautical Systems Center, Electronic Systems Center, Space and Missile Systems Center, and Air Armament Center]. rather easily. There seems to be an organizational sense to that. We have different acquisition processes and different engineering standards. We oftentimes have different industries that support those product centers, and we have people who grow up with skills in contracting and financial management and engineering and program management that focus on those different kinds of weapons systems. I think that's really what a Center of Excellence is. In this case, it was a Center of Excellence for those particular kinds of weapons systems.

As soon as you pick a term like that, it gets used by everybody. Everybody's excellent in something, so they just attach their own name to it. If I'm excellent at a particular kind of research, then this is the center of excellence for that research. It explodes and sort of becomes meaningless after that.

There was another problem with pushing it too much further as a title: that it was tied to this IWSM thing. If the Center of Excellence is the place where we do program management for weapons systems of that type, then it says all program management is done at the product center. And, see, the IWSM term was invented to say all program management of fielded systems is done at the logistics center.

Centers of Excellence became known as a way to say-in code-[that] all product management is done at the product centers, and it never transitions to the logistics centers.

Therefore, I would get visits to my office from politically connected people who would say "This is really a bad idea; I hope you don't intend to pursue that." it did become a political issue, and I daresay it could become a political issue very quickly again. It gets into this business of "Who is in charge here, and where is the work going to be done?" instead of "What is the best way to do the process to get the job done for AFMC and for the Air Force?" So even though it's a perfectly innocent and useful concept and I think it had good meaning, it now has baggage, and in my mind it's no longer a useful term. I have tried to push through the concept of OSS&E [Operational Safety, Suitability, and Effectiveness] and say [that] we're not going to limit program management to particular locations, leaving open the fact that we might have fielded weapons systems managed at the ALCs [Air Logistics Centers]. But we are going to say that all of that cross-cutting capability that allows us to do a good job-for instance, a fully developed engineering staff and a contracting staff that understands it in terms of an acquisitions strategy, not just a purchase order-we wouldn't duplicate all of those kinds of capabilities at every center. We would make sure that the product centers focused on setting those standards for that range of equipment, especially in the engineering area. In that sense they become Centers of Excellence.

THOMPSON: Could you explain the Operational Safety, Suitability, and Effectiveness [OSS&E] policy and its origins. I hadn’t heard this term before.

BABBITT: In my mind there are two different issues that sort of come together in this idea of Operational Safety, Suitability, and Effectiveness. The first one was a recognition that we may have let our expertise in technical management slip away from us a little bit. I'm not sure when that happened or how it happened, but it's one of those slow, insidious things. I know when I got here, there was a proposal

to do away with EN [Engineering], which struck me as odd because this is a command whose whole history and tradition is engineering excellence. It struck me as odd that when I asked the question "How do you do flight certification of military aircraft?" there wasn't a ready answer. I think that had slipped away-which is fairly serious.

We had had some incidents of unsafe behavior. Some of it was a disciplinary issue, and that had more to do with the depot maintenance processes. But some of it was just pure failure of our processes. For example, one of the first ones that happened-and I had a minor confrontation with the AMC [Air Mobility Command] commander over it -- was that the Air Force had developed and was using, in support of our CINCs [Commanders-in-Chief] and VIPs, a set of modules that fit inside a cargo airplane. It was called "the silver bullet." It was a three-piece module. One was the lounge compartment, if you will, where a person could sit during a flight in a cargo bay of an aircraft, but in comfort. Then there was a communications van and a galley. These were put together in a totally unsatisfactory way, by people who had never done anything in support of flight vehicles. In fact, they were unsafe. They were unsafe by Air Force standards; they were unsafe by FAA [Federal Aviation Administration] standards-and we were carrying people like the Secretary of Defense and the CINCs of unified commands around in them.

There were people who knew they were unsafe, yet they felt that by the way we had managed them -- these were engineers in AFMC -- that either it wasn't their job or it wasn’t their place to make a statement about it. [They felt] that it was somebody else's prerogative to choose to fly unsafe equipment. Well, I don't find that acceptable, so that was certainly one of my motivations.

We had another case where we had a major accident. We lost an aircraft because we had disassociated the engineering review of a modification to the point where people responsible for the supply management of a component thought they had,

in effect, unilateral authority to re-engineer that component. This sort of thinking comes, I believe, from our modem view of how a personal computer works and how the manufacturer of a modem, for instance, can independently engineer the modem and it works when plugged in. In that case, those interfaces are clearly and sharply defined. I don't know of any airplane that has ever been built that has those sharp interfaces. In fact, the most visible characteristic of most of our airplanes is the complete and total integration of everything -- where one thing is dependent on the other. There are no sharp interfaces; everything is integrated together and it's just "this airplane." These interfaces were not sharply defined, yet the technical management approach that we used was that they were. So the component engineers re-engineered it, assuming they understood the interfaces when they didn't. This was such a critical failure in engineering discipline that it caused all four engines on a B-1 bomber to shut down in flight, and we lost the airplane. Fortunately, nobody was killed. I consider that to be a total failure of the engineering process, so there had to be a way to re-establish those standards.

Now, standards had developed a bad connotation because in the 1990s they had become seen as government standards -- where bureaucrats were trying to tell smart, private sector engineers how to design airplanes. But that doesn't mean that in the case of military airplanes -- that are not certified for flight by the FAA and by legal responsibility are certified as safe by us -- that we shouldn't have standards in place by which we perform that certification. So OSS&E was an attempt to correct that failure. That was one aspect of ot -- the technical discipline.

The other part of "why OSS&E?" has to do with this program management issue inside the product support business area, and what are the full range of responsibilities of program managers. If you go to a product center, even to this day, you will hear people who are very articulate at describing the responsibilities of program management in the early phases -- in the product development and product planning cycle. They will talk about engineering and manufacturing development in a very articulate way, and they know how those programs are put

together and how they're managed, and they will talk to some extent about how production programs are put together and how they're managed. But their description of what goes on in the product field-support area tends to be "Well, we give it to the contracting officer and he just hires somebody to do that for us.

On the other hand, if you go to a logistics center, you'll get people who talk on and on and on about how you do product field support but really don't have a very clear understanding of how you do EMD [Engineering and Manufacturing Development] and how you put together a long-term arrangement with a contractor to both develop and then produce a weapon system. Yet it's all program management in my mind; it's all part of one continuous spectrum of the life cycle of the weapon. So OSS&E for fielded weapons systems was an attempt to try to better articulate the responsibilities of program management in the fielded system phase and how those could be made more logically a part of the program management responsibilities, as the product centers now see it for EMD and production. So I felt that there was a good reason to push that in both regards.

The impact is that on the engineering side, in EN, they work very, very hard to come up with the standards for configuration management for certification of the safety of our equipment for the continued suitability of that equipment. Does it continue to perform the way we designed it to perform? And then, looking at it in a larger sense, is it effective in the environment that it has to perform in? An airplane may have been designed to operate in a particular threat environment and was very effective there and it still operates that way-but the threat has changed and therefore it's no longer effective.

Those are long-term product support areas that we need to tell our engineering people how to measure, assess, and recommend and implement changes. That's the engineering side. On the DR [Directorate of Requirements] side, in the product support business area side -- the way that manifests itself is in trying to

assign tasks and understand the cost of managing those tasks for fielded weapons systems -- which we really didn't have a good understanding of before.

THOMPSON: In the late 1980s, the Packard Commission sparked a fundamental reorganization within the defense acquisition community. What has been the impact of the Program Executive Officer (PEO) structure on AFMC's acquisition mission? Has AFMC, as a command, fulfilled the promise of the acquisition reform measures of the last decade?

BABBITT: I see that as two separate issues. The first one -- on the PEO structure -- I was in the Pentagon during part of that. To be honest with you, when I tried to compare what appeared to be the motive of the Packard Commission (and later the Congressional legislation of Goldwater-Nichols), it made pretty good sense to me when you relate that to the experience that many of the people involved in that had in the private sector. I've always likened it to the difference between an operating program versus a capital enhancement program.

If you look at most big companies, they assign operational management to operating managers, and operating budgets go along with that. That's a continuous process. The management styles are all built around the idea that it will be a continuously operating business, so you tend to hear people talk about metrics of performance during an operating cycle, like a year or a quarter.

On the other hand, capital budgets in big companies are almost always centrally managed, and capital budget commitments are reserved at least for the corporate leadership and sometimes for the board of directors. They are not managed – i.e., they are not decided -- by the operating managers. Oftentimes, big capital enhancements like building a new plant or investing in a major piece of new equipment have a separate management structure for their creation, and you hire a program manager. It's not managed as a continuous program; it's managed as a

program that starts, and then you do certain things, and then it ends. Then the program is over and you have this new capability.

That's really what our acquisition programs are. When we buy new weapons systems, we're doing a capital investment, so it made good sense to me to hear people in the Congress, in business, and in OSD talk about how you should model yourself more after the way it's done in the private sector. So it didn't bother me a bit, and the PEO was a key link in establishing that very abbreviated management structure between a capital program manager and the senior executive who was going to be responsible for that investment.

Theoretically, then, once that's complete, you throw that over into the operating program and you let the operating managers take care of it. But in my mind, what seems to have happened is that that concept never really got fully implemented, and the PEO has been used as a tool just to change who's in charge here. It has sort of become another way to reorganize. I'm pretty close to this, so sometimes I'm not sure whether I'm totally objective, but I think we need to go back to some basic principles if we're going to really make progress on this. That's why I keep saying if we're trying to model ourselves after business, let's go check -- are we like business?

I think we are at a point now where much too much of our acquisition is managed through PEOs, when it should be managed through other investment managers that we call our designated acquisition commanders (DAC). Some of our most experienced program management people command our product centers, and in some cases our logistics centers. They should be trusted by the Service Acquisition Executive in this abbreviated chain of command to manage more programs. That's one part of it.

But then, when it becomes an operating program -- when the weapons system has been built and it's out in the field -- we have this continuing support of a fielded

weapons system. [These are] the kinds of tasks that I described in OSS&E. Who is responsible for that? Well, that's not the responsibility of the capital budget manager; that's the responsibility of the operating program manager.

I considered myself, along with the other MAJCOM commanders, to be the operating managers of the Air Force as opposed to the investment managers of the Air Force. So I tried to establish that program managers -- single managers -- had this dual responsibility if they own fielded equipment. New acquisitions work up through the acquisition or capital budget manager, but the operating programs of the acquisitions worked through me. We made some progress in that; we worked on that for over a year and a half, but I have to admit that we didn't make a whole lot of progress. I think it will depend on everybody's interest in the future as to whether we continue to make progress there.

THOMPSON: My next question I think addresses that issue -- clarifying the roles and responsibilities of the Air Force acquisition executive and the AFMC commander. Do you believe that you reached a satisfactory arrangement regarding fielded weapons systems? If so, do you believe this arrangement has been institutionalized sufficiently to continue?

BABBITT: I'm not sure that I do. Since worked in that direction for a fairly long time, there could be one of two answers to your question. It could be that it's just a hard problem and we ought to keep working on it. Or it could be that we don’t have the right solution. I leave it up to my successor to decide that. Even if I had stayed, I think at some point in time I'd have to say "There's something wrong here. We don't seem to be able to make progress. What other approach could we take?" I do feel that there's a lot of what I previously described as the command’s engineering problems that can be traced back to this inability on our part to distinguish between operating management and investment in new capability. I worry about the effect of this inability on the long-term health of the Air Force. I sure would like to see those two responsibilities clearly defined separately.

We've gotten to the point where we now have what's called a portfolio. Where previously it was called the PEO/DAC portfolio, there now is a fielded weapons system portfolio. I think that is a way for people to see the issue and make conscious decisions about operating management and investment in new capability. I understand that 4000th F-16 was produced in June. Of course, not all of them belong to the United States Air Force, but we have a lot of F-16s. Up until we started pushing this distinction two years ago, the F-16 program was listed as a PEO program, meaning that even though it was at ASC [Aeronautical Systems Center], the ASC commander had no responsibility for that airplane -- even though there's thousands of them out there in the field. Of course, the F-16 SPO [System Program Office] is a very capable SPO; they weren't ignoring fielded systems by any means.

But the question is, how can Air Force effectively manage fielded systems if the center commander and the AFMC commander and their associated staffs have nothing to do with fleet of operations and maintenance? I'd like to see those responsibilities better defined. There is a way to do that through these portfolio reviews. We have people working on it. Nevertheless, it appears to be one of those things that could suffer "death by IPT" [Integrated Product Team]. Whenever there's a tough issue, we appoint another IPT, and if it's still too tough, we appoint another one after that. So it tends to be hard to make progress in some cases. We'll see what happens, I guess.

THOMPSON: You expended considerable effort to nurture AFMC officers in technical career fields, doing so under the guise of the phrase "Growing a Materielist." Please explain this concept, its origins, and its status.

BABBITT: To be fair, I think the term "Growing a Materielist" started before me. And I think that focus was to say that people in AFMC aren't acquisition and logistics personnel; they are materialists -- meaning that "materialist" sort of

encompassed both terms. Therefore, what we ought to be doing is growing people that have experience in both areas. I think it looked inward to AFMC, and I think there's a lot to be said for that. Especially inside this area we call product support, we need to try to minimize the distinctions. There's just one way to do program management, and people who practice it should understand how to do it, whether it's a fielded system or whether it's an EMD system.

I think that was a good initiative, and I think it continues to this day. We do look at the skills that are required in various aspects of program management, and we try to encourage people to get those certifications and qualifications and to be broadly enough experienced so that we could assign them at an ALC or at a product center. A lot of that is going on.

There's another part of this, though, in managing -- especially the technical career fields -- that I put some effort into over my last year and a half. That has to do with the fact that in our program management and engineering military career fields, we need to ask ourselves the question "Why do we have any military people in these specialties?" It's kind of like hitting yourself with a hammer. You might say "Why do we have to keep asking that question?" But I think it's important, because if there's no answer to it, then we shouldn't incur the extra training and expense associated with having people be military officers when, in fact, our civilian members could do just as good a job as the military members. So the question is still on the table: "Why should you have any military members doing these jobs, and if you're going to have them, how many should you have?" How would you answer that question?

I have tried to read -- in fact, you provided me with some of it -- those documents that go back to 1945, 1 think, when [Dr. Theodore] von Karman first started drafting his first version of *Toward New Horizons.* Then there were several other reviews throughout the 1950's, and the intensity rose again around 1958 through 1960, when the ballistic missiles came along and eventually led to the separation

and creation of the [Air Force] Systems Command and the [Air Force] Logistics Command. This issue of career progression and the connection of the technical Air Force with the operational Air Force was a constant theme. It was not the only theme, but it was a constant theme in all of that.

In fact, there was a quote that we've used here in briefing charts that von Karman had in *Toward New Horizons*. I will have to paraphrase it, because I can't remember the exact words, but the idea was that in order to effectively develop technology to support operations, you have to have those engineering and technical skills so that you can understand the limits of technology and what it's capable of doing. But on the other hand, if you're going to actually apply it to the art of warfare, you have to have knowledge of that art, too. Since it's probably not possible that everybody should be trained in both arts, there has to be a way to bring people in and out, to constantly stir the pot and keep people connected with the operational side of the Air Force.

So from von Karman on, there is this constant theme that there needs to be a uniformed military presence, not only in the science and technology community, but in the acquisition and engineering community-because that's the only way to keep the scientific and engineering community closely connected with the operational Air Force.

Well, I think that's a pretty powerful argument, and I think it works equally well today. It didn't say then, and it doesn't say now, that all of the engineers and program managers and scientists have to be in uniform. In fact, the question still could be "How many does it save? It may not be this many, but it's probably more than this." I think that's something we should struggle with, and that is one of the things we've been trying to struggle with.

Then if you say it's going to be a certain number of uniformed people, you're stuck with the second issue of having said they're there, because they bring this

flavor of the operational Air Force to science and technology *and* they take the flavor of science and technology back to the operational Air Force. That's only true if they move. If all they do is become uniformed permanent AFMC engineers and program managers, then they don't bring any operational experience to, and they don't take any scientific and technical expertise back, to the operating commands.

There has to be a formula for career management there, and it doesn't appear to me that it works like that right now. I think that's an area that we should continue to try to develop. You can't train everybody to be an F- 15 pilot *and* a research director in the directed energy labs. That's probably too much for one person to take on. But we could do a better job of bringing people into our engineering and scientific activities and then letting them move back out again. They probably have to start out -- if they're going to work in those engineering disciplines -- with a fundamental degree in engineering, but we have many, many people in the Air Force that come to us with a degree in engineering.

It's another part of this that I wouldn't exactly call "Growing the Materialist," because that's sort of focused on how we overcome the logistics-acquisition syndrome. But then I think there's this other issue that says "How about the engineering and scientist issue versus the operational issue?" That's another part of this career management. And it's still growing.

We were working that independently for a while as an AFMC issue, and then it became subsumed into a project started by the Air Force Chief of Staff last summer, and that was under the title of "Developing Aerospace Leaders." This became a subset of that, worked at the [Air Force] Personnel Center. Retired [Major] General Chuck [Charles D.] Link has been overseeing that project. It was briefed at CORONA [meeting of top level Air Force leadership held periodically]. It's not focused exclusively on the issue that I just described, but that issue is a part of it, and my hope is that that will continue to be debated and discussed.

But it's another one of those cases where if you go back far enough in the argument to where you get to a basic principle, instead of just advocating a position, you're stuck with the fundamental logic of the thing. Then it's okay to go back to that original position, but you ought to check it every once in a while [and ask] "Does this make any sense?" Sometimes we argue [that] we need x number of people to in uniform to be engineers. But if we never offer them any way to move in and out of the operational commands, what's the point?

THOMPSON: You're correct that this has been addressed for a long period of time. I seem to remember that you had approached this at one of the AFMC Commanders' Conferences.

BABBITT: On "Growing the Materialist?"

THOMPSON: Yes.

BABBITT: We have talked about it, and I think it's an important issue, but to be honest with you, I think that probably goes back at least to Viccellio and may go back to Yates [both previous AFMC commanders].

THOMPSON: Public/private depot maintenance workload competitions have commanded considerable attention in AFMC during your tenure as the commander. One of the significant competitions was the C-5 workload that now resides at Robins Air Force Base, Georgia. What is your assessment of these competitions?

BABBITT: I think they were really significant, and for a lot of reasons. I was surprised that we won all three! I could even say -- without meaning any criticism of anybody that I was surprised we even won one. It's very hard to put a proposal together, and the industry guys know that full well.

In this case, we had three proposals put together that apparently measured up pretty well, from everything I can tell from people who participated in source selection. That was done by people who hadn't previously had any experience in doing this, so that's why I was surprised, and it's a real compliment to the people who put it together. It certainly allowed us to get to what, at the time, was a very difficult political process.

Having been involved in it from July of 1995, when the BRAC [Base Realignment and Closure Commission] announcement was made and I was the brand-new LG in the Pentagon and that became one of my projects, I know the whole history of the public/private depot maintenance workload competitions. Aside from the C-5, the other two were the SA-ALC engine workload and the SM-ALC composite workload package.

All three started out as "privatize-in-place" programs and eventually became public/private competition. There were political pressures in 1995 to privatize-in-place, and there were military issues. Having participated in that, I can assure anybody who wants to know that the military and the civilian leaders wanted to make sure that each had a reason either to support or not to support privatization in place.

I don't know what the administration's reasons were for supporting it. I suspect they were political reasons, but that doesn't seem to offend anybody -- they're politicians. But the military leaders' reason for supporting privatization-in-place was a perceived need to move 35 percent of our production capacity in a relatively short period of time. To do that was almost bound to cause disruption and a reduction in readiness, because there was going to be a gap where we couldn't produce. Now the fact is that that's exactly what has happened, even though the plans for that transition were very good. There were good reasons, I thought, and I had to justify that in my own mind, so I can say I've spent some

time thinking about it. There were good reasons to say that privatization-in-place was the right thing to do [to avoid disruption and a reduction in readiness].

However, that would have meant that all that workload done at those two depots [at Sacramento CA and San Antonio TX] would have then been done by contract. The argument from those who advocated the other side -- especially the depot caucus from the three remaining ALCs -- was, "Hey, wait a minute! We closed two depots because we had excess capacity spread among five depots. If you don't bring that workload here so we can fill it up, how are we going to be more efficient? We'll have the same amount of workload and the same amount of local excess capacity; therefore, there will be no improvement in efficiency."

The Congressional delegations said, "Air Force, you work this out, but one thing's for sure: If it's undecided and your not going to move existing workload directly to the remaining ALCs, then it had better be decided through competition, not fiat, because we're not sure who's making that decision." In effect they were saying, "We don't trust you, Air Force." The handwriting was on the wall, and the OSD guys soon picked up on it and said, "Privatization-in-place is out. We're going with public/private competition." The public/private competition process worked, and we have awarded those contracts, and we are moving those workloads, and although we've had some disruption to readiness, it's not nearly as extreme as I would have even guessed. Therefore, I think they've been very successful in that regard. I think public/private competition is good.

There's one other point I'd like to make, and that is that we now operate that portion of our depot maintenance activity with one of these contracts between government agencies. We know who the buyer is, we know who the seller is, we know the contract between the two, both for the resources that are needed to do the job and for the terms of how the product will be delivered, and on what schedule and in what quality. We never had that before. I told the ALCs over and over again, as I have been out there talking to them, that this eventually should be

the model for all of our depot maintenance workload. We should always know who the customer is, and we should not necessarily write a complex FAR [Federal Acquisition Review] contract, but we can write a service level agreement that says, "Here are my expectations for performance. Here's my expectations for getting paid for it." And that's the nature of a deal. So I think they're a good role model for how we should move in that direction in the future, to manage business.

As far as the C-5 contract goes, it's been a struggle. It's a very complex airplane and a very complex contract. We are behind schedule and over cost right now, but not to an unrecoverable point. I think the Warner-Robins [ALC] guys are working very hard to make sure that they get that back on track. But the fact is that compared to what it cost us before, we're still way ahead. We're just not quite on the mark for what we bid.

THOMPSON: You touched on the Base Realignment and Closure decisions in 1995, to close two air logistics centers -- one at San Antonio and one at Sacramento. Could you elaborate any on lessons learned from the AFMC standpoint concerning these centers, particularly in relation to the workload transition?

BABBITT: These aren't necessarily connected together, but I think there are lessons learned. One of the lessons I learned is that by having a public/private competition, we decentralized management. We let this proposal team put together not only what it was going to cost to do the work, but the schedule and the means by which the transition was going to take place. They did this in a competitive environment, and they knew that if they bid it well and won, they had to execute it, and if they didn't pay any attention and bid it high, they weren't going to get the workload. So there was a strong reason for them to be accurate in their forecast. There was no involvement from this headquarters or any other headquarters in reviewing and approving those transition plans. That was the quickest and most efficient way to get the job done. We could have spent years

reviewing and approving and having IPTs on the transition. The real answer was to put them in charge, and let them be accountable and do the work. I think that's one lesson learned, and maybe we could apply that in other areas, even without a public/private competition.

I think as far as BRAC goes, the Air Force -- in my opinion -- made a mistake, and it may have been as simple as a mistake in understanding what terms mean. There is a difference between an air logistics center and a maintenance depot, and based on some inputs that we got from the Government Accounting Office and some pressure from the Third Floor [of the Pentagon], we said to ourselves that we had excess maintenance capacity. In the interest of maintenance capacity, we closed two major installations where lots of other activities were going on. I think the Air Force was co-conspirator in that -- not deliberately, but it was the way we used the terms.

The Navy and the Army don't use the terms that way. The Navy was credited with having closed six of their aviation maintenance facilities. Those three naval aviation depots were closed on bases that were not subject to BRAC; they were just hangars and some shop space on three different naval stations, and each of those naval stations exists to this day. If we had said, "We have excess maintenance capacity, let's close the excess maintenance capacity," we might have made a different decision about the bases.

But it is a lesson learned, I think, for the future -- that we need to distinguish between a capacity to perform different kinds of work and the name of a base. Most of our bases nowadays are not single-mission bases, and we have a bad habit of referring to them that way. I hope if there is another round of BRAC, the Air Force can learn that lesson.

THOMPSON: The Expeditionary Aerospace Force, known as the EAF, was implemented in 1998 and is an important initiative to transform the Air Force into

a more responsive, sustainable, efficient, and reliable fighting force. It is based on ten Aerospace Expeditionary Forces, or AEFs. What is the role of AFMC in support of the EAF? Will implementation of this concept be sufficient to relieve the high operations tempo imposed on many of AFMC's high-demand units?

BABBITT: The role that we defined in our strategic planning for AFMC is in three parts. As the engineering and acquisition command for the Air Force, we need to recognize that the forces that can best support this expeditionary concept are probably different in their technical design than the forces that were used to fight the Cold War. So we should constantly be using our brain and thinking about how they should change. How should our design concepts change? What's important? What are the important characteristics of an expeditionary aerospace force? And [we should be] moving on designs for the future and our modifications of legacy systems in that direction. That's one.

We are also the support command that provides logistics sustainment for units in peacetime and engaged in combat. That is embodied, I think, in the supply chain concept, and we have to replace consumables. The old concept of replacing consumables in Europe and on the Korean peninsula in a Cold War-turned-major war was based on everything being forward-positioned. The assumption was that the lines of communication were not secure and therefore we had to pre-position and move it forward.

The world has changed. That's not the way we're going to fight in the future, and we need to rethink how we're going to provide that continuous support to our deployed combat units, or we are going to be unsuccessful.

I've given some speeches noting that we've done a pretty good job, I believe, in rethinking how we supply consumable spare parts. But as you look at the volume of resupply [for] spare parts, and compare that to the volume of resupply to replace munitions, the first problem is insignificant compared to the second one.

And we still have this Cold War mindset that in this logistics flow for an expeditionary force, somehow this expeditionary force is going to just fortuitously close on a base that already has munitions pre-positioned. For the life of me, I can't figure out how we're going to make that happen.

So how are we going to get this tremendous volume of munitions to follow along in the wagon trains to support the AEF? Well, one answer is to fly all the bombers out of Whiteman AFB [MO], and then they become both the logistics train and the combat vehicle at the same time. But if you're going to forward-deploy forces, that's a major logistics problem, and we've given very little thought to that. Pre-positioning ships helps, but you still have to get materiél from the port to the air base, and there's no thought given to that. So I think that's an issue that still needs to be worked, but that's an area of responsibility, I think, for AFMC.

The third area is that although we're not a principal supplier of forces for AEFs, we do have, at our 13 bases, a number of tenants that are combat units, and we have combat support forces --civil engineers, security forces, services people, transportation and supply people -- that are tasked to support those deploying forces. They are prepared to go, are part of UTCs [Unit Type Codes], and are tasked to an AEF. Our job is to make sure, just like any MAJCOM, that we properly train them and that we keep them ready at all times.

As far as whether it will solve the high operations tempo problem -- I don't think so. I think the best we can expect of the AEF is that it won't change the operations tempo, but it will make those deployments a little more predictable and maybe spread that around a little better to everybody that could be made available to pick up those deployments. But I think we're in a time of high operations tempo, and I think that's the nature of being in the Air Force.

At the Order of the Sword ceremony [presented to General Babbitt by AFMC's enlisted forces] I spoke to a retired chief [master sergeant] from some time ago,

who was talking about the amount of time he used to spend away from home. This would have been in the 1950s and 1960s. Of course, everything changes with time, but his recollection was that it was a lot. If you think back to the 1950s and 1960s, the SAC [Strategic Air Command] guys used to run REFLEX. They would deploy forward with their bombers to Europe and to North Africa, and they'd be gone quite a bit; In the Vietnam days, many, many units were TDY [Temporary Duty] in support of Vietnam, not PCS [Permanent Change of Station]. The airlifters and even the bombers tended to be TDY tours, and many of the tankers were TDY. So there have been times in the Air Force when we've had high Ops tempo before. Of course, it's hard on families and it's very difficult. But it's also the nature of the job.

THOMPSON: I think you're right. Predictability may be one of the best aspects of the AED concept.

BABBITT: Right. And really, that's about all the Air Force officially has advertised. But I think sometimes people get up and give speeches and have a little slip of the tongue, as if it's going to make the Ops tempo go away. That isn't going to happen. We need to do our job, and right now we're called to deploy.

THOMPSON: Another significant event during your command was Air Force activity in Kosovo. Please discuss AFMC contributions to the operation and lessons learned.

BABBITT: I think the thing that comes up in a very short-notice conflict like that -- that we are most noticed for, either good or bad -- is our ability to supply continuously; to replenish consumables. I am pleased to say we did a good job. We were able to keep the spare parts flow moving very well, and in my visit to European bases where a lot of those sorties were flown from, I received many compliments on the support from AFMC.

Overall, I think we did an excellent job; we had very good visibility of parts. We moved them effectively and we used good transportation modes to get them there. But to an extent we satisfied those requirements at the expense of other Air Force needs, and that's not the right answer. Prioritization is not the right answer to fighting wars. Supplying everything that *everybody* needs is the right answer, from our point of view.

We did a good job, along with everybody else in the Air Force, in terms of munitions resupply. I consider that a major problem for the future, and I'm not sure that people realize how significant and fortunate it was that one of our largest and more capable munitions storage areas at Camp Darby on the Italian peninsula. We bedded down nearly all of our combat airplanes on the Italian peninsula, and many of the munitions were resupplied from Camp Darby. I daresay there are other places in the EUCOM [United States European Command] area of responsibility – including the entire continent of Africa – where I'm not sure then how we would handle the munitions problem. Although there isn't any political reason to believe we would go those places and fight a war any time in the near future, it's conceivable that it could happen.

Another aspect of AFMC's mission was technical support. When I was in Europe I got a lot of compliments about technical support. These were addressed to all of our centers. The AAC [Air Armament Center, Eglin AFB FL] personnel did a really great job of responding to urgent requests for technical support for our munitions. There were some weapons and munitions that had never been delivered [at targets?] under quite the circumstances that were encountered there, and when they behaved in a way that appeared to the operators to be abnormal, they had to turn to somebody and say, "Give me some technical support." Our people deployed quickly, and they were smart and knowledgeable. They knew what was going on. They worked the issues enthusiastically, and they got the problems solved almost immediately. There were a lot of other people who did

that in a reach back mode. We had people available 24 hours a day, and they were responsive to the technical needs.

I think that's something we should learn in AFMC -- how important it is. Anybody who's bought a PC [personal computer] knows that you get the thing delivered, and that technical support help line is a number that you're probably going to call at least once. And that's the way these weapons systems are. We need to see ourselves as the people back here with the technical support help line. You want somebody to pick up that phone who knows what they're talking about, can talk you through the issue, and get the problem fixed. There's a lot of our information infrastructure that we should put in place with that in mind -- that we're facilitating that reach back for technical support.

I think, overall, ALLIED FORCE was a great success. There is one other area that we did real well in, and that's the combat-mission-need statements that were generated during the conflict. This was a 78-day conflict. There were 20-some CNINs [Combat Mission Needs] submitted -- I think there were something like 10 or 12 approved by the Air Force Chief of Staff, and I believe 5 or 6 of those were actually completed and used in combat within that 78-day window. That's a very good turnaround.

THOMPSON: There has also been considerable discussion on the proper mix of Air Force and Navy aircraft and airborne weapons test and evaluation facilities. What do you see as the result of this debate in the new decade?

BABBITT: I saw a briefing that said that the Air Force ought to have a test and evaluation command. I reacted negatively to that, and I asked the other participants in this briefing if that wasn't the epitome of stovepipe thinking. Would they think just as enthusiastically if we said that we wanted to have a command that was dedicated to engineering or dedicated to whatever other functional discipline we might name? A maintenance command? I don't think

that's the way we would put things together. I think that the way ahead is to build a strategic plan for T&E [Test and Evaluation]. We had some success in my last two years, with the strong support of the Secretary [of the Air Force] and [Air Force] Chief [of Staff] to put a depot maintenance strategic plan together, and I think it helped clarify our thinking on it. I think we are in the process of doing that for S&T [Science and Technology] and probably we will have some success there. But T&E ought to be next on the list.

My thinking is [that] there are two reasons we have T&E expertise and a T&E business area in AFMC. One is [that] it's a systems engineering discipline with a long and important history and clear evidence that as we learn more and more about how to expand the envelope of any kind of a weapons system to see how it performs when it's on the very edges of its ability to perform, there are engineering things that you can do that make you much more successful than if you just do it by trial and error. You're probably going to kill a lot of people and lose a lot of equipment if you just do it by trial and error. I think that we in AFMC should be the keeper of that expertise. And because people come and go -- careers end and new people come on board -- there has to be a way to continually refresh that process. There has to be some institution that is the keeper of that, and I think this is the right command to do that, and T&E should be here.

There is another totally separate issue, though. This is sort of the "organize and train" part, and then there is the "equipping" part. The issue there, it seems to me, is that many times testing weapons systems requires unique and very expensive kinds of range and telemetry and other kinds of specialized testing facilities. It certainly can't be cost effective in today's declining defense budgets to have each of our defense manufacturers -- at our expense -- duplicate all of these facilities and then charge us for them. It probably makes sense for us to say, "We'll build this capability and we'll make it available to people, but we'll do it at our range, and we'll just build it once."

So I think we are also the logical repository for these capital assets, and we should manage those assets as efficiently as we can, to the benefit of the Air Force and -- in some cases -- to the benefit of the nation, where other users come in. If we could build a strategic plan around that, I think we could come to grips with how much of this now should belong to the Navy, how much should belong to the Air Force, and how much to the Army, how much to NASA [National Aeronautics and Space Administration], and how much to the Department of Energy. We can get to those answers, but we have to have a clear understanding of "Should any of it belong to the Air Force?"

I think a part of the "organize and train" area should belong to the Air Force, to keep it connected to the operational Air Force. Should the ownership of the facilities and the equipment belong to the Air Force? Some of it probably should, because if we really depend on it, we're going to be sure that we keep it up and take care of it. But we could also: give some of it up to other agencies to manage, and we could work that through. Somehow we've got to be able to sit down and say, "What is our goal here? What does the Air Force really believe it wants to do?"

THOMPSON: There has also been much debate on the amount of new technology required by United States military forces in the 21't Century. At current finding levels, can the partnership of DoD, academia, and private industry sustain the necessary technological edge for airpower?

BABBITT: Well, I think this gets at the issue of how big the S&T budget should be. I can tell you for sure the Chief and the Secretary are not critics of science and technology, but they are not pushovers for "we need more money," because *everybody* needs more money. There's a lot of back pressure that says "prove it," and we have looked at this thing from a funding point of view, which -- to some extent -- is a little superficial.

But we've looked at it from a funding view now from a number of different ways, with the pushback from the Chief and the Secretary to tell me "Okay now, don't just show me the Air Force portion of the budget, but show me the DARPA [Defense Advanced Research Projects Agency] budget and the other services' budgets and show me the total DoD investment in S&T, and try to show me how much of each of that is invested in aerospace-type technologies -- things that are of interest to the Air Force." When you begin to look at it that way, the total amount of funding for S&T for those aerospace-related activities and technologies has come down during the decade of the 1990s. But as a percentage of Air Force TOA [Total Obligation Authority], it's about the same as it was in 1990.

So, has the commitment to S&T changed? One could argue not, because it's relatively the same percentage of the budget as in the past. Now, some aren't that easy. What some people who are advocates of S&T say -- as von Karman did, and I think General Arnold -- is that even in times of low budget in between wars, that's where you should be investing in the science and technology to get ready for the next one. So you could argue that maybe in declining budget times you should be investing a higher percentage of TOA in S&T than we are.

I don't think so. I don’t think we should be thinking about the next big war. We haven't had a real war since World War II, if you use the definition of Congress-declared war. We've been involved in a lot of conflicts and they seem to be getting closer and closer together. I think you could make the argument that total investment-wise, we're at about the right level.

The problem that I perceive that we have is that we've kind of got a meat-grinder approach on how we decide what we're going to invest in, and we need a long-term, steady commitment to what technologies we're going to invest in. That's what we pitched in the Quarterly Acquisition Program Review on S&T -- half a day with the Chief, the Secretary, and the MAJCOM commanders [10 April 2000].

At this point, stability is as important as more money in S&T. The last Air Force POM [Program Objective Memorandum] went in at zero percent real growth in S&T. In other words, it doesn't get any better, but it doesn't get any worse. It's a fairly steady line. How can we make sure that below that, the mix of all that program isn't just full of chum -- this money is going over here and that money is going over there. That's what's been happening lately, and it's very disruptive to a research program.

THOMPSON: How would you assess AFMC's management of the Y2K [year 2000] transition? What shortcomings or weaknesses, if any, occurred? How serious was the threat to mission accomplishment? What lessons did AFMC and the Air Force take from the Y2K issue?

BABBITT: My impression is that we managed Y2K through a process of accountability. First. of all, we established a target population of all the software-based systems that could be subject to Y2K problems, and then we assigned to each of those systems an accountable person. Then, strictly through a regular process of management review and assurances from those accountable people, we worked our way through this over a period of about a year and a half.

As a result, I did not oftentimes see the technical details that went into correcting problems. What I saw was a management process of extracting assurances that things were on track and they were going to meet certain milestones which were laid out in fairly good detail. That's not a particularly fun kind of management, but it does appear that for a very, very large and detailed problem that's not a bad way to get the job done. And it seems to me that it worked.

It soon became evident that that style of management allowed us to separate 70 or 80 percent of what we were responsible for as in the "done deal" sort of category and would not spend a whole lot more time on it. It allowed, then, the

management focus to get ever more narrow on those things that *were* problems -- management by exception, 1 guess you call that. In the end, I think there were probably 20 or 30 critical areas as we got close to the first of January [2000] that we were still working right up to the last minute.

We had nothing that seriously degraded mission performance in the Air Force. We had some that fell short of our expectations, but if you got down into the details, it wasn't for lack of trying. So I think it was a pretty good program. Hopefully we don't have something as intense and expensive as Y2K come along any time again in the near future. It was pretty distracting.

THOMPSON: One thing that's hard to assess is "What would have happened had we not tried?"

BABBITT: Yes. A lot of people have asked that question. Because of the way we managed it, I don't think I gained any knowledge that would help me assess that, because we didn't report the things that were bad that we fixed -- we fixed them. Then the event was passed and the milestone was met, and therefore everything was okay. There were so many things that it's hard to assess that.

I did talk to the folks down at the SSG [Standard System Group at Gunter Annex, Maxwell AFB AL] about some of the management information systems. And they said that fairly late in the process they began to have access to some commercial tools that had been developed that could go through and screen COBOL code, for instance, and detect the patterns for things that had already been seen as Y2K problems. With those tools, they were able to find some things that they had missed the first time through. So I don't think you could say that had we done nothing, this would have just been a non-event. I think there was much that got fixed, and there were even some things that maybe the first time through we missed. That was true in management information systems, and I suspect it was true in mission systems, too. Because of the way we funded it, and because of the

way we keep track of costs in the Air Force, we don't really know what it cost us. All we can say is [that] they didn't give us much extra money. That doesn't mean we didn't take a lot of money out of existing programs and spend it on Y2K as opposed to [spending it] on something else. It was expensive, it was distracting, it took a lot of effort -- but in the end it was successful, so I guess it was worth the effort.

THOMPSON: How successful has AFMC been in executing the competitive sourcing program (known as the OMB A-76 approach) as a means to reduce manpower costs? What have been the most significant challenges and obstacles encountered in carrying out the A-76 program? During the next few years, will competitive sourcing continue to be as prominent in AFMC's pursuit of reducing the resources allocated to manpower, or should other strategies play a larger role? Does competitive sourcing constitute a potential risk in relation to the command's ability to provide adequate support for combat forces -- and the AEF concept? I know it's a long question, but it's a big issue in this command.

BABBITT: You bet it is. I get this kind of question most often from groups of enlisted people -- actually, more so than I do from the civilian workforce. I think the issue is because the civilian workforce sees that even in an A-76 review, there's a chance to compete, whereas the military workforce -- especially the enlisted workforce -- knows that as soon as it's announced that there's an A-76, there's no more military people, regardless of how the competition works out. So that's been a serious morale problem, and that's one of the down sides of it.

I'll tell you how I answer a group of enlisted people on this, because I think they are the ones that fear it the most. I try to refer back to what I've been pushing -- that we need to be responsible managers, and we need to be responsible and accountable to the taxpayers and to our military leaders and civilian leaders for managing the resource input that produces the output. If we can find ways that reduce the cost of creating the output but don't degrade the quality or timeliness of

output -- in fact, in some cases, improves it -- what possible excuse could we have not to take advantage of that opportunity? And would that be professionally ethical if we didn't take advantage of that opportunity?

Most people say, "I see where you're going, and I don't like to be led in that direction, but the fact is, it would be hard to say that that wasn't the right thing to do." Probably if they weren't personally affected by it, they wouldn't even have trouble answering the question; they'd say "Well, of course. We should always struggle to do better and be better." I think if it's done in that way, A-76 is a powerful and useful tool.

You asked the question in terms of it being used as a tool of manpower reduction. That has oftentimes been the thrust from OSD. I've resisted that for several years now and continue to resist it, because it destroys the argument that I just made -- and do make to the enlisted folks -- that says this does not have anything to do with cost or efficiency; it has to do with somebody's arbitrary decision that the number of people who work in government ought to be smaller than it is now. And you say "Why should they be?" The most logical response you should get is, "Because that would make us more efficient." But if efficiency is not a measure, then it's an empty argument. What we should say is that our goal is to be more efficient and more capable at the same time. And if A-76 is a tool to help us achieve that objective, then -- painful as the transition may be -- we should get on with it.

Now, we have had some success. We have achieved significant savings, whether we awarded the contract to the MEO [most efficient organization] or to the contractor. It made no difference. In both cases there were significant savings. I think the opportunities for that are getting much, much smaller, so I don't see how we can continue to do this too much longer in the future. For those organizations that involve military people, the only reason we haven't done more of them now -- and this is the answer to the last part -- is that we need those people to go support

AEFs and be able to fight wars. Therefore, we're not going to "A-76 them." That would eliminate the military people.

THOMPSON: I'd like to focus one final question on your experience in South Vietnam in the early 1970s. You served at Tan Son Nhut Air Base in South Vietnam for a year between 1970 and 1971 as a maintenance officer for the 12th Tactical Reconnaissance Squadron.

BABBITT: Yes. That was my third assignment. I had gone to England for three years, and I worked in the 10th Reconnaissance Wing, three squadrons of RF-4Cs. So my first three years as a maintenance officer, I worked on RF-4Cs. Then I came to Wright-Patterson [Air Force Base] and went to AFIT [Air Force Institute of Technology]. After a year and a quarter or so in AFIT, I went to Vietnam. I was assigned there because they wanted somebody that had had some experience in RF-4Cs. There was one squadron of RF-4Cs, along with a lot of other kinds of reconnaissance aircraft in the 460th Tactical Reconnaissance Wing. I was the flight line maintenance officer, and I worked for the reconnaissance squadron commander.

This is a long way of explaining maintenance organizations, I guess. The wing that I had worked with in England was organized the same way. The crew chiefs -- the APG [Airplane General] -- type mechanics -- and the squadron maintenance officer, worked in the flying squadrons. They worked in fighter squadrons, they worked in reconnaissance squadrons, and they worked for the operational commander. The specialists were organized like they were in the States at that time, into what was called [Air Force Manual] 66-1 organization. There existed an avionics maintenance squadron and a field maintenance squadron and a munitions maintenance squadron. The specialists were then dispatched under the control of a central control activity -- maintenance control -- and came out to work airplanes. They were dispatched to the airplanes; they didn't work for the people in the squadrons.

Over the years since then, there have been six different maintenance organizations, organized at the Air Force level or at least at the MAJCOM level. They have moved back and forth between having everything under the control of trained maintenance people -- that was production line maintenance, which started right at the end of World War 11 and was actually, I think, partly invented by [General] Curtis LeMay. The B-29 was one of the first airplanes that was maintained in a production line maintenance concept, which became known as 66-1. The idea there was that the whole maintenance organization in the wing was, from top to bottom, experienced maintenance people. It was a stovepipe, but it was a professional stovepipe and everybody knew how to do maintenance.

The other organizational extreme was 66-31, which was current in the early 1970s. It was "Everybody works in the flying squadron." Whether they be dispatched specialists, or munitions loaders, or crew chiefs -- they all worked out of the flying squadron. It was very resource -- intensive, because there were three shops of every ilk, and they had to have all the equipment that went along with it. We've gone back and forth -- we slam up against one wall, then we slain up against the other wall -- in trying to reorganize ourselves and trying to solve problems through reorganization instead of trying to understand the processes.

I think it was in the 12th that I began to see it could work any way. To be honest with you, being in the flying squadron was kind of fun for me. I enjoyed it and usually so did the enlisted folks. There's a certain amount of pride in being part of a combat unit. But any one of those organizations could work. If they don't work, the question ought to be "Why isn't it working?" And let's go fix the problem -- let's not just reorganize again.

I've recently had a chance to comment on this, because reorganizing maintenance has come up as a hot issue again all of a sudden. My argument would be, if in the 35 years of my career we have reorganized six times, would a seventh time be

likely to produce any results when the first six haven't solved the problem? Somehow we must be working the wrong issue here. Reorganization isn't the answer.

[During] the time in Vietnam, I was a fairly young captain. Maybe another way to say that is naive. I guess that was a growing-up time, because there's a certain amount of independent action that's required of you when you're the squadron maintenance officer. You're away from home, and you're there and people are flying combat sorties every day. So that was certainly a growing-up time for me -- being willing to take on responsibility on my own, without going and asking somebody's advice for everything.

THOMPSON: That experience gave you the confidence to deal with other assignments later on?

BABBITT: When I left Vietnam, I was a maintenance officer. I had gone through Chanute [Air Force Base, Illinois] to go to technical training school, and I didn't really know much about the Air Force, even after I'd been in for a while. I just assumed I'd stay in maintenance. When I left Vietnam, I went into the program management business. I was assigned to the B-I SPO at Los Angeles Air Force Station, which was actually at the Rockwell plant. It was a huge shock, to come from running a flight line in Vietnam to working in an office in the Rockwell plant.

THOMPSON: Because you went from a situation in which you had a lot of responsibility and authority and instant feedback to one where you had none of those things?

BABBITT: Absolutely!

I spent six years then, working in program offices -- some of it here at Area B [at Wright-Patterson AFB OH]. This is an experience I've related to a number of young people. I had been five years in the aircraft maintenance business and six years in program offices. During the time I was in program offices, I was seen as the program-office logistician. To some people, I was still in aircraft maintenance, but I wasn't actually doing it. So now there was a career choice.

The people here at Wright-Patterson wanted me to go off and continue in program management, and I decided that I wanted to go back to aircraft maintenance. Now, I'm not sure how I reached that conclusion, but my feeling was that a lot more of the Air Force was focused on operational management issues, and that's where most of my early training and skills were. If I was going to continue to say I was a maintenance officer, then I'd better go back and do it for a while. So I went back into aircraft maintenance after going to the intermediate service school, and then I stayed in it from that point until I got promoted to general, I guess, and started in what would be called logistics.

But thinking back on the Tan Son Nhut experience, I'm sure that it helped shape my career decision. It wasn't an easy decision, to go back into aircraft maintenance, because by then -- six years out -- a lot of people on the maintenance side said, "Who's this guy? He's just got a little bit of experience in maintenance, and it was a long time ago." But for me, anyway -- with my background -- it was a good decision to go back to maintenance.

If there is anything [to which] I could attribute the opportunity to be promoted, it's that I've always been connected with the operational Air Force. I grew up with a lot of the people who are now the leaders of the Air Force. It certainly doesn't hurt to know them and be familiar with them. That's why I really would love to be able to figure out a way to get all of the capable people that we have in Air Force Materiel Command who -- because of the career management things that we impose on them -- they never get a chance to go out there and become good

friends with the operators in the Air Force. And there ought to be that kind of connection. When they grow up to be colonels or brigadier generals or major generals, they ought to be able to call up somebody because they knew him 10 years ago, and have a discussion about what's going on. But there's a tendency now to grow up in a stovepipe, and you don't even meet one another until you're a major general. That can't be the right answer for the Air Force. We've got to figure out ways to get those military guys to interchange more.

THOMPSON: There are not many left in the Air Force who were in Vietnam.

BABBITT: Not many with Vietnam experience; that's right. Because U.S. participation ended in 1974-1975, and the middle of the zone for brigadier general this year is the 1976 year group. So second lieutenants that came on active duty in 1976 are kind of in the middle of the window for promotion to brigadier general. Not very many left at all.

THOMPSON: That’s about it. Thanks for talking with me.

BABBITT: That was a good set of questions. It kind of got at some of the tough issues, I think.

It's always going to be hard, I think, for an AFMC commander to feel comfortable with everything it does. There is no career path that you can have, I think, where you grow up with experience in every one of these areas. It's just too much. If you did, you'd be so shallow in all of them that you probably wouldn't be effective anyway. So there's always going to be a commander who is either a T&E expert with some program management experience, maybe -- or who comes from a logistics background, like I did, with maybe a little bit of program management experience. Or he's a research engineer, but he's also done program management and maybe had some operational tour. But there's always going to be something that you haven't done.

I felt that that's a good reason and a good way to use a vice commander, and I was particularly pleased with having [Dr.] Dan Stewart as the Executive Director. It's such a broad command that I think it really takes three people in the front office to cover the spectrum of experiences that it takes to run the command. With 70 percent of the workforce in AFMC being civilian, I think we're kidding ourselves not to have a senior civilian in the Command Section to help in the career management of that part of the workforce.

THOMPSON: Dr. Stewart immersed himself in all these issues.

BABBITT: He certainly did. I told him, and we sort of told one another, I think to reinforce the point, that he was not the DP [Director of Personnel]. We already had a DP. But a front office should be concerned about overall personnel development. I know, just because of what I grew up in, I was comfortable and found that it was easy for me to know how to bring along the members of AFMC on the military side. But it was not nearly as easy for me to be effective at that with the civilian side.

THOMPSON: This is probably the only command that really needs that position, compared to the operational commands.

BABBITT: That's right. But the size of the civilian work forces of the operational commands is relatively small, and therefore it's not a principal activity. In AFMC it should be a principal activity, but it takes more than one person in the front office to have all those experiences and be able to do that, so I think that may be another thing about AFMC in the future, that will have to stay a little bit different from the other commands. [We are] almost always going to need a vice commander who has a different career development pattern than the commander, and then a civilian who can complement both of them with his or her experiences. Hopefully, as long as we can keep it going like that, I think there will be sufficient people who can keep their hands on all of the issues.